

AMENDMENT UNDER 37 C.F.R. §1.111  
U.S. Appln. No. 10/699,815  
Docket No. Q77547

**REMARKS**

Claims 1-5, 7 and 9-12 are pending in the application.

**Claim Rejections**

**Claims 1-3, 5, 7, 9, 10 and 12**

Claims 1-3, 5, 7, 9, 10 and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Murata (U.S. Patent No. 4,935,665) in view of Vriens et al. (U.S. Patent No. 5,813,753).

Applicants respectfully traverse.

The present application is directed to a headlamp which produces an appropriate illumination pattern using LEDs. Claim 1 recites a light emitting element with a light emitting surface which has a shape which is horizontally elongated and rotationally asymmetric and which has a straight-line edge. The optical system of claim 1 forms a light distribution pattern with a cut line by projecting the straight-line edge of the light-emitting surface. For example, the non-limiting embodiment of Fig. 4 illustrates a straight line edge 13. Since the light emitting surface has a straight line edge, a light pattern can be produced with a cut line. The non-limiting embodiments of Figs. 5-7 show light distribution patterns formed with cut lines produced by a light-emitting surface with a straight-line edge.

Murata and Vriens, considered either alone or in combination, fail to teach or suggest a vehicle headlamp as recited in claim 1. Particularly, Murata does not disclose a light emitting element which is rotationally asymmetric and which has a straight-line edge with an optical

system which forms a cut line by projecting the straight-line edge and Vriens does not supply this deficiency.

In order to meet headlamp regulations, such as SAE, ECE, JIS, etc., a headlamp needs to have an accurate lens structure and the correct distance between the lens and light source and they must form a required illumination pattern. The required illumination patterns for a headlamp meeting the regulations cannot be formed by simply positioning LEDs in rows, as in Murata. Also, even if LEDs were used as the light source in the projector type headlamp of Vriens, the resultant illumination pattern would not meet the headlamp regulations. Particularly, these designs result in many light rays passing through the lens crossing, mixing and overlapping in complex patterns, so that an accurate illumination pattern cannot be formed. For example, light-emitting elements are generally substantially circular when viewed in the direction of the optical axis. This results in a circular pattern from the light-emitting element. Even if several of such light-emitting elements are combined, the result is still not a straight cut line. Rather, it is a series of connected rounded portions.

Moreover, the shape of an LED chip is much smaller than that of a filament. This makes it difficult to control the multiple LEDs with lenses for each LED to form a desired pattern.

In view of the above, the light emitting element of the claimed invention has a light emitting surface with a particular shape so that an accurate illumination pattern is made before the light ray from emitting light source reach the lens. For example, claim 1 recites a light emitting surface with a straight line edge and a light distribution pattern with a cut line is formed by projecting the straight-line edge. Therefore, according to the claimed invention, the light

AMENDMENT UNDER 37 C.F.R. §1.111  
U.S. Appln. No. 10/699,815  
Docket No. Q77547

source itself can have a desired particular shape. Since the shape of light source is similar to a smaller version of the illumination pattern, a proper illumination pattern can easily be made by simply using the lens for diffusing the light source. Claim 1 is allowable at least because Murata and Vriens, either alone or in combination, fail to disclose a light emitting surface and a projection an optical system forming a light distribution pattern with a cut line by projecting the straight-line edge of the light-emitting surface, as claimed. Claim 12 is allowable at least for reasons similar to claim 1.

Claims 2, 3, 5, 7, 9 and 10 depend from claim 1 and are allowable at least by virtue of their dependency.

**Claims 4 and 11**

Claims 4 and 11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Murata in view of Vriens and further in view of Segoshi (U.S. Patent No. 4,686,726). Applicants respectfully traverse.

Claims 4 and 11 depend from claim 1. Segoshi does not correct the above-noted deficiencies of Murata and Vriens with respect to claim 1. Accordingly, claims 4 and 11 are allowable at least by virtue of their dependency. Applicants also note that even if the SEgoshi blind creates a cut line, the Segoshi blind is irrelevant to forming a cut line as recited in claims 4 and 11.

**Conclusion**

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the

AMENDMENT UNDER 37 C.F.R. §1.111  
U.S. Appln. No. 10/699,815  
Docket No. Q77547

Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

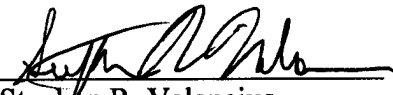
Respectfully submitted,

SUGHRUE MION, PLLC  
Telephone: (202) 293-7060  
Facsimile: (202) 293-7860

WASHINGTON OFFICE

**23373**

CUSTOMER NUMBER

  
Stephen R. Valancius  
Registration No. 57,574

Date: May 10, 2007